REMARKS

The Office Action dated January 30, 2004, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto. Applicants respectfully note that no new matter has been entered through the above amendments and the instant amendment does not raise new issues that require further search and/or consideration. Claim 1 has been amended to more particularly point out and claim the instant invention. Support for the above amendment may be found at page 119, line 29 to page 120, line 9, of the instant specification. Claim 4 was indicated as containing allowable subject matter. Thus, claims 1-5 are respectfully submitted for consideration.

Claims 1, 2, and 5 were rejected under 35 U.S.C. § 102(e) as being unpatentable *Hoffman et al.* (U.S. Patent No. 6,094,435) in view of *Lau et al.* (U.S. Patent No. 6,636,523). Applicants assume that the first rejection was intended to be made in view of 35 U.S.C. § 103(a), and not under 35 U.S.C. § 102(e), as indicated. Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hoffman et al.* in view of *Lau et al.* and *Zheng et al.* (U.S. Patent No. 6,611,522). The above rejections, as may be reasserted against the claims as amended, are respectfully traversed according to the remarks that follow.

The present invention is directed to, according to claim 1, a method for managing congestion in a network switch. The method includes the steps of receiving an incoming packet on a first port of a network switch for transmission to a destination port,

determining if the destination port is a monitored port, determining a queue status of the destination port, if the destination port is determined to be a monitored port and prescheduling transmission of the incoming packet to the destination port if the destination port is determined to be a monitored port. Additionally, the network switch is one of a plurality of network switches configured in a stack and the step of prescheduling transmission includes dropping the incoming packet only when the queue status of the destination port indicates that a queue for the destination port is full. Claims 2 and 5 depend from claim 1.

The present invention is also directed to, according to claim 3, a method for managing congestion in a network switch. The method includes the steps of receiving an incoming packet on a first port of a network switch for transmission to a destination port, determining if the destination port is a monitored port, determining a queue status of the destination port, if the destination port is determined to be a monitored port and prescheduling transmission of the incoming packet to the destination port if the destination port is determined to be a monitored port. The prescheduling step of further includess the steps of classifying the queue status of the destination port and taking action in accordance with the classification of the queue status. Additionally, the classifying step further includes the steps of classifying the queue status of the destination port as a first type if a level of data in the queue is less than or equal to a first predetermined level, classifying the queue status of the destination port as a second type if the level of data in the queue is less than or equal to a second predetermined level and greater than the first

predetermined level and classifying the queue status of the destination port as a third type if the level of data in the queue is greater than the second predetermined level. Claim 4 depends from claim 3, where claim 4 was indicated as containing allowable subject matter.

The invention, as defined in independent claims, is directed to methods of servicing the CoS queues at a source IPIC based upon the egress port queue status across the stack, as opposed to servicing the queues based upon CoS priority. Through servicing the queues based upon the egress queue status, the method effectively considers the CoS priority in conjunction with the egress queue status, which in turn minimizes port congestion and transmission delay across the stack. While the present invention minimizes port congestion, incoming packets are not dropped until a destination queue is indicated as being full. As such, Applicants respectfully assert that the cited references fail to teach or suggest all of the elements of the present claims.

Hoffman et al. is directed to a multi-layer network element for forwarding received packets from an input port to one or more output ports with quality of service. When output queues exceed or meet a *threshold value below the queue's capacity*, packets are randomly discarded. When the queue becomes full, the network element determines which flow caused the queue to overflow. The priority of that flow is lowered. Scheduling of multiple output queues at each output port uses a weight round robin approach that allocates a weight portion of packets to transmit at each time interval.

The Office Action acknowledges that *Hoffman et al.* fails to disclose that the network element therein is in a stacked switching system

Because of this deficiency, the Office also cites *Lau et al.* *Lau et al.* is directed to a flow control method using rules queue monitoring in a network switching system. The Office Action alleges that *Lau et al.* teaches a stacked system, illustrated in Fig. 1, having multiple switches (12a, 12b, 12c) connected through expansion ports (30). However, even with this additional reference, Applicants respectfully assert that *Hoffman et al.* and *Lau et al.* fail to teach or suggest all of the elements of claims 1, 2 and 5, as discussed below.

Claim 1 recites, in part, "the step of prescheduling transmission comprises dropping the incoming packet only when the queue status of the destination port indicates that a queue for the destination port is full." In contrast, *Hoffman et al.* discloses that when output queues exceed or meet a *threshold value* below the queue's capacity, packets are randomly discarded. This is clearly different than claim 1 where such dropping or discarding occurs only when the queue of the destination port is full. Thus, Applicants respectfully assert that *Hoffman et al.* fails to teach or suggest such an element.

Turning to *Lau et al.*, Applicants note that *Lau et al.* is silent with respect to the dropping of packets. *Lau et al.* indicates, at column 9, lines 41-44, that once a flow control threshold signal is received for a port, the switch stops data transmission to that port. Thus, *Lau et al.* also fails to teach or suggest above-discussed element of claim 1. In addition, even if the disclosure of *Lau et al.* could somehow be interpreted as

suggesting the dropping of packets, such a teaching would not comport with the clear teachings of *Hoffman et al.*, and any combination of *Hoffman et al.* and *Lau et al.* attempting to reach the subject matter of claim 1 would be improper. As such, Applicants respectfully assert that rejection of claims 1, 2 and 5 over *Hoffman et al.* and *Lau et al.* is improper and should be withdrawn.

Turning now to the rejection of claim 3, the Office Action alleged that that claim was obvious in view of *Hoffman et al.* in view of *Lau et al.* and *Zheng et al.* It is acknowledged, in the Office Action, that *Hoffman et al.* fails to teach three types of queues or that a full queue is classified as a third type and thus, the Office Action also cites *Zheng et al.* *Zheng et al.* is directed to a quality of service facility in a device performing IP forwarding and ATM switching. The Office applies *Zheng et al.* for its alleged teaching of outputting data based on three levels of output queue status. The rejection of claim 3 is respectfully traversed.

Zheng et al. discloses three watermarks, according to column 27, lines 3-45, but only for low priority queues; higher priority queues have only two watermarks and *Zheng et al.* discloses that such distinctions need to be made in order to allow for proper management of the queues. Both *Hoffman et al.* and *Lau et al.* disclosure both higher priority and lower priority queues, but fail to disclose applying differing monitoring activities to the two types of queues. As such, Applicants respectfully assert that any combination of *Hoffman et al.*, *Lau et al.* and *Zheng et al.* would not provide the motivation proffered in the rejection, namely "to control output data effectively." Such a

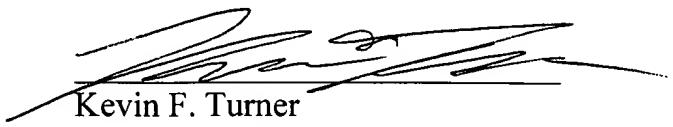
combination would only provide a system having a more complicated control structure and would not be desirable. For at least this reason, Applicants respectfully assert that the rejection of claim 3 is improper and should be withdrawn.

Thus, Applicants respectfully assert that any rejection of claims 1 and 3 over *Hoffman et al.*, *Lau et al.* and *Zheng et al.* would be improper for failing to teach or suggest all of the elements of those claims. On the basis of the above, independent claims 1 and 3 are respectfully asserted to be patentable, and as a consequence the dependent claims 2, 4 and 5 are patentable as well. Applicants respectfully request the allowance of all claims and that the application be allowed to pass to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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